

IN THE CLAIMS:

Please amend claims 4-9, and 11-12 as follows:

4. (AMENDED) An amino acid sequence of an engineered β -Ketoacyl-acyl carrier protein synthase protein wherein said amino acid sequence of said engineered β -Ketoacyl-acyl carrier protein synthase protein has at least one substitution, insertion or deletion of at least one amino acid residue of an amino acid sequence of a native β -Ketoacyl-acyl carrier protein synthase, and wherein said engineered β -Ketoacyl-acyl carrier protein synthase protein has an altered substrate specificity compared to said native β -Ketoacyl-acyl carrier protein synthase protein.

5. (AMENDED) The amino acid sequence of claim 4, wherein said native β -Ketoacyl-acyl carrier protein synthase protein is obtained from a prokaryotic source.

6. (AMENDED) The amino acid sequence of claim 4, wherein said native β -Ketoacyl-acyl carrier protein synthase protein is obtained from *Escherichia coli*.

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7. (AMENDED) The amino acid sequence of claim 4, wherein said native β -Ketoacyl-acyl carrier protein synthase protein is obtained from a plant source.

8. (AMENDED) An amino acid sequence of an engineered β -Ketoacyl-acyl carrier protein synthase protein wherein said amino acid sequence of said engineered β -Ketoacyl-acyl carrier protein synthase protein has at least one substitution, insertion or deletion of at least one amino acid residue of an amino acid sequence of a native β -Ketoacyl-acyl carrier protein synthase protein selected from the group consisting of residues 105-120, 130-140, 190-205 and 340-400 of said amino acid sequence of said native β -Ketoacyl-acyl carrier protein synthase protein.

9. (AMENDED) The amino acid sequence of claim 8, wherein said native β -Ketoacyl-acyl carrier protein synthase protein is obtained from *Escherichia coli*.

11. (AMENDED) The amino acid sequence of claim 8, wherein said [amino acid sequence] native β -Ketoacyl-acyl carrier protein synthase protein is obtained from a plant source.

β^3 12. (AMENDED) The amino acid sequence of claim 11 wherein said at least one amino acid substitution, insertion or deletion is in a position selected from the group consisting of [residue] residues 110, 113, 115, 116, 134, 139, 198, and 204 of said native β -Ketoacyl-acyl carrier protein synthase protein.

Please add the following new claims 17-27:

17. (New) An amino acid sequence of an engineered β -Ketoacyl-acyl carrier protein synthase protein, wherein said amino acid sequence of said engineered β -Ketoacyl-acyl carrier protein synthase protein has at least one substitution, insertion or deletion of at least one amino acid residue of an amino acid sequence of a native β -Ketoacyl-acyl carrier protein synthase protein, and

β^4 wherein said at least one substitution, insertion or deletion of at least one amino acid residue results in an alteration of the hydrophobic binding pocket of said engineered β -Ketoacyl-acyl carrier protein synthase protein compared to said native β -Ketoacyl-acyl carrier protein synthase protein, such that said engineered β -Ketoacyl-acyl carrier protein synthase protein has an altered substrate specificity compared to said native β -Ketoacyl-acyl carrier protein synthase protein.

18. (New) The amino acid sequence of Claim 17, wherein said at least one amino acid residue of said native β -Ketoacyl-acyl carrier protein synthase protein which is substituted, inserted or deleted is involved in the formation of the hydrophobic binding pocket of said native β -Ketoacyl-acyl carrier protein synthase protein.

19. (New) The amino acid sequence of Claim 18, wherein said at least one amino acid residue involved in the formation of the hydrophobic binding pocket of said native β -Ketoacyl-acyl carrier protein synthase protein that is substituted, inserted, or deleted is selected from the group consisting of the amino acid residues at positions 105-120, 130-140, 190-205, 340-400, and combinations thereof, wherein said amino acid residue position refers to the amino acid residue position in the active native β -Ketoacyl-acyl carrier protein synthase protein.

20. (New) The amino acid sequence of Claim 19, wherein at least one amino acid residue of said native β -Ketoacyl-acyl carrier protein synthase protein is substituted with a smaller hydrophobic amino acid residue.

21. (New) The amino acid sequence of Claim 17, wherein the specificity of said engineered β -Ketoacyl-acyl carrier protein synthase protein is altered such that long chain fatty acid accumulation is increased compared to said native β -Ketoacyl-acyl carrier protein synthase protein.

22. (New) The amino acid sequence of Claim 17, wherein the specificity of said engineered β -Ketoacyl-acyl carrier protein synthase protein is altered such that long chain fatty acid accumulation is decreased compared to said native β -Ketoacyl-acyl carrier protein synthase protein.

23. (New) The amino acid sequence of claim 17, wherein said native β -Ketoacyl-acyl carrier protein synthase protein is obtained from a prokaryotic source.

24. (New) The amino acid sequence of claim 17, wherein said native β -Ketoacyl-acyl carrier protein synthase protein is obtained from *Escherichia coli*.

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25. (New) The amino acid sequence of claim 24, wherein said at least one amino acid residue of said native β -Ketoacyl-acyl carrier protein synthase protein that is substituted, inserted, or deleted is selected from the group consisting of the amino acid residues at positions 108, 111, 113, 114, 133, 138, 193, 197, 203, 400, and combinations thereof, wherein said amino acid residue position refers to the amino acid residue position in the active native β -Ketoacyl-acyl carrier protein synthase protein.

26. (New) The amino acid sequence of claim 17, wherein said native β -Ketoacyl-acyl carrier protein synthase protein is obtained from a plant source.

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27. (New) The amino acid sequence of claim 26, wherein said at least one amino acid residue of said native β -Ketoacyl-acyl carrier protein synthase protein that is substituted, inserted, or deleted is selected from the group consisting of the amino acid residues at positions 110, 113, 115, 116, 134, 139, 198, 204, and combinations thereof, wherein said amino acid residue position refers to the amino acid residue position in the active native β -Ketoacyl-acyl carrier protein synthase protein.
